1 【What is claimed is:】

2 1.   A transmission and reception system for data

3 broadcast, including a transmission apparatus which

4 transmits a data broadcasting content and a receiving

5 apparatus which receives and presents the transmitted data

6 broadcasting content,

7   the transmission apparatus comprising:

8   a presentation schedule time obtaining means for

9 obtaining a presentation schedule time when the data

10 broadcasting content is to be presented,

11   a data broadcasting content transmission means for

12 starting to transmit the data broadcasting content before

13 the presentation schedule time, and

14   a message transmission means for transmitting a

15 presentation start instruction message at the presentation

16 schedule time; and

17   the receiving apparatus comprising:

18   a   data   broadcasting   contents   reception   and

19 presentation means for receiving the transmitted data

20 broadcasting content and invisibly presenting the data

21 broadcasting content, the invisible presentation of the

22 data broadcasting content meaning a state where a series

23 of processes relating to the presentation prior to a

24 process by which the data broadcasting content becomes

25 visible are performed, and the broadcasting content still

26 remains invisible, and

27   a data broadcasting contents visualization means for

28 visualizing the invisibly presented data broadcasting

29 content, when the transmitted presentation start

30 instruction message is·received.

1 2. The transmission and reception system for data

2 broadcast of Claim 1, wherein

3   the message transmission means transmits an

4 invisible presentation instruction message when the data

5 broadcasting contents transmission means starts to

6 transmit the data broadcasting content, and

7   the data broadcasting contents reception and

8 presentation means starts to receive the transmitted data

9 broadcasting content when the transmitted invisible

10 presentation instruction message is received, and

11 invisibly presents the data broadcasting content when the

12 reception of the data broadcasting content has been

13 completed.

1 3. The transmission and reception system for data

2 broadcast of Claim 2, wherein

3   the data broadcasting contents transmission means

4 starts to transmit a preceding data broadcasting content

5 prior to the data broadcasting content,

6   the preceding data broadcasting content includes

7 first control information including an instruction which

8 instructs the receiving apparatus to, when the invisible

9 presentation instruction message is received, receive the

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10 data broadcasting content and designate the data

11 broadcasting content as an object for presentation,

12 the data broadcasting content includes image

13 structure information and second control information, the

14 second information including

15 (a) an instruction which instructs the receiving

16 apparatus to, when the data broadcasting content

17 becomes the object for presentation, form an

18 image according to the image structure

19 information and keep the image being in an

20 invisible state, and

21 (b) an instruction which instructs the receiving

22 apparatus to, when the presentation start

23 instruction message is received, change the

24 invisible state of the image into a visible

25 state,

26 the data broadcasting contents reception and

27 presentation means receives the preceding data

28 broadcasting content, waits until the invisible

29 presentation instruction message in accordance with the

30 first control information is received, starts to receive

31 the transmitted data broadcasting content when the

32 invisible presentation instruction message is received,

33 designates the data broadcasting content as the object for

34 presentation when the reception of the data broadcasting

35 content has been completed, forms the image in accordance

36 with the second control information in the data

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37 broadcasting content as the object for presentation,

38 brings the image to an invisible state, and waits for the

39 presentation start instruction message, and

40   the data broadcasting contents visualization means

41 changes the invisible state of the image into a visible

42 state.

1 4.   The transmission and reception system for data

2 broadcast of Claim 3, wherein

3   the data broadcasting contents reception and

4 presentation means performs processes required by the time

5 when the image has been stored in a frame memory in

6 accordance with the image structure information, which is

7 realized by prohibiting signals based on the image in the

8 frame memory from being outputted to a display apparatus

9 connected to the receiving apparatus, relating to the

10 invisible presentation of the data broadcasting content,

11 and

12   the data broadcasting contents visualization means

13 visualizes the data broadcasting content by allowing the

14 signals based on the image in the frame memory to be

15 outputted to the display apparatus connected to the

16 receiving apparatus.

1 5.   The transmission and reception apparatus for data

2 broadcast of Claim 4, wherein

3   the preceding data broadcasting content further

4 includes preceding image structure information to form an

5 image as an object for presentation,

6   the instruction in the first control information

7 instructs, when the invisible presentation instruction

8 message is received, to bring the visibly presented image

9 to an invisible state, then start to receive the data

10 broadcasting content, and designate the data broadcasting

11 content as an object for presentation, and

12   the data broadcasting contents reception and

13 presentation means visibly presents the image in

14 accordance with the preceding image structure information

15 after the preceding data broadcasting content is received,

16 and, when the invisible presentation instruction message

17 is received, brings the presented image in accordance with

18 the preceding image structure information to an invisible

19 state, and starts to receive the data broadcasting content.

1 6.   The transmission and reception system for data

2 broadcast of Claim 4, wherein

3   the preceding data broadcasting content further

4 includes preceding image structure information in order

5 to form an image as an object for presentation,

6   the data broadcasting contents reception and

7 presentation means

8   (a) includes a memory which has a space where the data

9   broadcasting content and the preceding data

10   broadcasting content can be stored at the same

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11   time,

12   (b) receives the preceding data broadcasting content

13   and stores the content in the memory, and then

14   visibly presents the image in accordance with the

15   preceding image structure information, and

16   (c)when the invisible presentation instruction

17   message is received, starts to receive the data

18   broadcasting content and store the content in the

19   memory, and, when the storage of the content in the

20   memory has been completed, erases the image

21   presented in accordance with the preceding image

22   structure information.

1   7. The transmission and reception system for data

2   broadcast of Claim 3, wherein

3   the data broadcasting contents transmission means

4   further multiplexes video stream data, in which (a) visual

5   data making up a first broadcast program whose content

6   relates to the preceding data broadcasting content and (b)

7   visual data making up a second broadcast program whose

8   content relates to the data broadcasting content are

9   continuously constructed, with the preceding data

10   broadcasting content and the data broadcasting content,

11   and transmits the multiplexed data,

12   the presentation schedule time is determined in

13   advance so as to be concurrent with the time when the

14   receiving apparatus is due to start to present the visual

15 data making up the second broadcast program in the video

16 stream data, and

17   the data broadcasting contents reception and

18 presentation means further receives the transmitted video

19 stream data and presents the broadcast program made up of

20 each of the video stream data.

1   8.   The transmission and reception system for data

2   broadcast of Claim 3, wherein

3   the data broadcasting contents transmission means

4   repeatedly transmits each of the preceding data

5   broadcasting content and the data broadcasting content.

1   9.   The transmission and reception system for data

2   broadcast of Claim 2, wherein

3   the data broadcasting contents transmission means

4   further multiplexes video stream data consisting of visual

5   data making up a broadcast program whose content relates

6   to the data broadcasting content with the data broadcasting

7   content, and transmits the multiplexed data,

8   the presentation schedule time is determined in

9   advance so as to be concurrent with the time when the

10 receiving apparatus is due to start to present the visual

11 data making up the broadcast program in the video stream

12 data, and

13   the data broadcasting .contents reception and

14 presentation means further receives the transmitted video

15 stream data and presents the broadcast program made up of

16 each of the video stream data.

1 10. The transmission and reception system for data

2 broadcast of Claim 1, wherein

3 the data broadcasting content includes an image

4 structure information in order to form an image as an object

5 for display,

6 the data broadcasting contents reception and

7 presentation means performs processes required by the time

8 when the image has been stored in a frame memory in

9 accordance with the image structure information, which is

10 realized by prohibiting signals based on the image in the

11 frame memory from being outputted to a display apparatus

12 connected to the receiving apparatus, relating to the

13 invisible presentation of the data broadcasting content,

14 and

15 the data broadcasting content visualization means

16 visualizes the data broadcasting content by allowing the

17 signals based on the image in the frame memory to be

18 outputted to the display apparatus connected to the

19 receiving apparatus.

1 11. The transmission and reception system for data

2 broadcast of Claim 1,

3 the data broadcast contents reception and

4 presentation means waits for a predetermined time as its

5 opportunity, starts to receive the transmitted data
6 broadcasting content at the time, and, when the reception
7 of the content has been completed, invisibly presents the
8 data broadcasting content.

1 12. The transmission and reception system for data
2 broadcast of Claim 1, wherein
3   the data broadcasting contents reception and
4 presentation means, when an initial state of transmission
5 of the data broadcasting content is detected, starts to
6 receive the transmitted data broadcasting content, and,
7 when the reception of the content has been completed,
8 invisibly presents the data broadcasting content.

1 13. A transmission and reception method for data broadcast
2 used in a system including a transmission apparatus which
3 transmits a data broadcasting content and a receiving
4 apparatus which receives and presents the transmitted data
5 broadcasting content comprising:
6   a presentation schedule time obtaining step for
7 obtaining a presentation schedule time when the data
8 broadcasting content is to be presented;
9   a data broadcasting contents transmission step for
10 starting to transmit the data broadcasting content before
11 the presentation schedule time by the transmission
12 apparatus;
13   a message transmission step for transmitting a

14 presentation start instruction message at the presentation

15 schedule time by the transmission apparatus;

16 a data broadcasting contents reception and

17 presentation step for receiving the transmitted data

18 broadcasting content and invisibly presenting the data

19 broadcasting content by the receiving apparatus, the

20 invisible presentation of the data broadcasting content

21 meaning a state where a series of processes relating to

22 the presentation prior to a process by which the data

23 broadcasting content becomes visible are performed, and

24 the broadcasting content still remains invisible; and

25 a data broadcasting contents visualization step for,

26 visualizing the invisibly presented data broadcasting

27 content by the receiving apparatus, when the transmitted

28 presentation start instruction message is received.

1 14. A transmission apparatus which transmits a data

2 broadcasting content to a receiving apparatus which

3 receives and presents the data broadcasting content,

4 comprising:

5 a presentation schedule time obtaining means for

6 obtaining a presentation schedule time when the data

7 broadcasting content is to be presented;

8 a data broadcasting contents transmission means for

9 (a) starting to transmit a preceding data

10 broadcasting content including first control

11 information including an instruction which instructs

12   the receiving apparatus to, when an invisible

13   presentation instruction message is received, start

14   to receive the data broadcasting content and

15   designate the data broadcasting content as an object

16   for presentation,

17   (b) after the start of transmission of the preceding

18   data broadcasting content, and before the

19   presentation schedule time,

20   starting to transmit the data broadcasting content

21   including image structure information in order to an

22   image as an object for presentation and second

23   control information,

24   the second control information includes

25   (a) an instruction which instructs the receiving

26   apparatus to, when the data broadcasting content

27   becomes the object for interpretation, form the image

28   according to the image structure information and keep

29   the image being in an invisible state, and

30   (b) an instruction which instructs the receiving

31   apparatus to, when the presentation start

32   instruction message is received, change the

33   invisible state of the image into a visible state;

34   and

35   a message transmission means for

36   (a) transmitting the invisible presentation

37   instruction message when the data broadcasting

38   contents transmission means starts to transmit the

39   data broadcasting content,

40   (b)transmitting the presentation start instruction

41   message at the presentation schedule time.

1 15.   The transmission apparatus of Claim 14, wherein

2   the data broadcasting contents transmission means

3 further multiplexes video stream data, in which visual data

4 making up a first broadcast program whose content relates

5 to the preceding data broadcasting content and visual data

6 making up a second broadcast program whose content relates

7 to the data broadcasting content are continuously

8 constructed, with the preceding data broadcasting content

9 and the data broadcasting content, and transmits the

10 multiplexed data,

11   the presentation schedule time is determined in

12 advance so as to be concurrent with the time when the

13 receiving apparatus is due to start to present the visual

14 data making up the second broadcast program in the video

15 stream data.

1 16.   The transmission apparatus of Claim 15, wherein

2   the data broadcasting content transmission means

3 repeatedly transmits each of the preceding data

4 broadcasting content and the data broadcasting content.

1 17. A control program for enabling a transmission

2 apparatus to perform a content transmission process in

3   which the transmission apparatus transmits a data

4   broadcasting content to a receiving apparatus which

5   receives and presents the data broadcasting content,

6   the content transmission process comprising:

7   a presentation schedule time obtaining step for

8   obtaining a presentation schedule time when the data

9   broadcasting content is to be presented;

10   a data broadcasting content transmission step for

11   (a)starting   to   transmit   a   preceding   data

12   broadcasting   content   including   first   control

13   information including an instruction which instructs

14   the   receiving   apparatus   to,   when   an   invisible

15   presentation instruction message is received, start

16   to   receive   the   data   broadcasting   content   and

17   designate the data broadcasting content as an object

18   for presentation,

19   (b)after the start of transmission of the preceding

20   data   broadcasting   content,   and   before   the

21   presentation schedule time,

22   starting to transmit the data broadcasting content

23   including image structure information in order to an

24   image   as   an   object   for   presentation   and   second

25   control information,

26   the second control information includes

27   (a)an   instruction   which   instructs   the   receiving

28   apparatus to, when the data broadcasting content

29   becomes the object for interpretation, form the image

30   according to the image structure information and keep

31   the image in an invisible state, and

32   (b)an instruction which instructs the receiving

33   apparatus to, when the presentation start

34   instruction message is received, change the

35   invisible state of the image into a visible state;

36   and

37   a message transmission step for

38   (a)transmitting the invisible presentation

39   instruction message when the data broadcasting

40   contents transmission means starts to transmit the

41   data broadcasting content,

42   (b)transmitting the presentation start instruction

43   message at the presentation schedule time.